CHART II
R1B2 Database Design

June 12, 2000

Agenda

- R1B2 Database Design
- Table Definition Report
- Business Functions to Entity Matrix
- Sizing Estimates
- Data Load Plan - R1B1 to R1B2

R1B2 Database Design

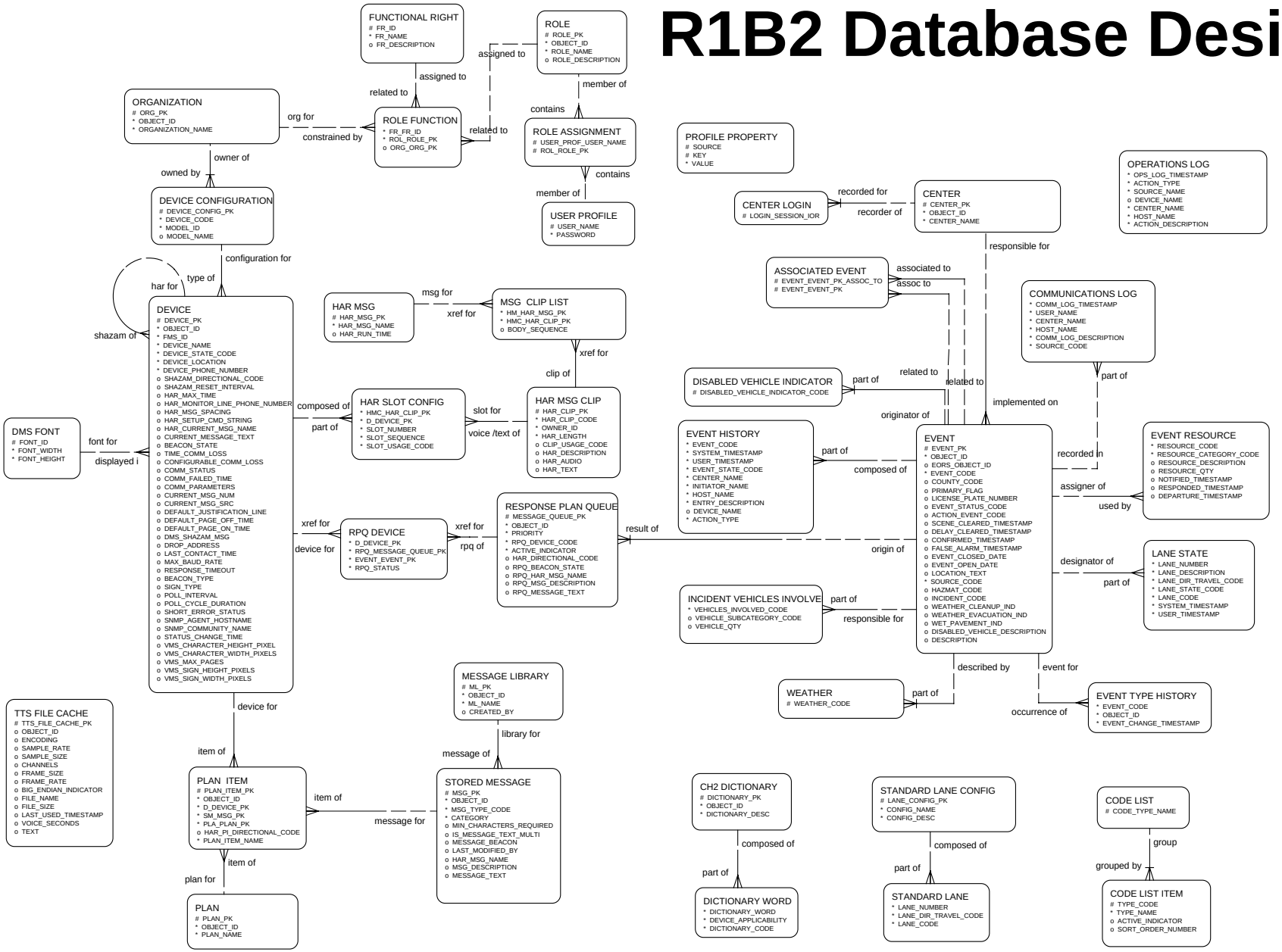

Table Definition Report

- **Defines the main components of the R1B2 data dictionary in report form.**
- **Consists of following contents:**
  - Table Name and Description
  - Table Volume
  - Column Detail and Summary
  - Primary, Foreign and Unique Keys
  - Check Constraints and Index Summary
  - TMDD Reference

Business Functions to Entity Matrix

- (provided in hard copy)

R1B2 DB Size Estimate

- **Estimated Size of R1B2 Database including two-week storage of log entries based on inputs in sizing chart below:**
  - 118MB avg - 240MB max
  - additional 200MB BLOB HAR storage for audio
    - 40 audio clips at 5MB per clip (1MB per 30 sec)
- **Estimate provides allocation for disk storage**
- **Tables will extend as needed**

R1B2 DB Size Estimate (cont'd)

- **Sizing Chart is based on:**
  - R1B1 estimates
  - Number of events from 1998 estimate:
    - 13,000 DMS changes
    - 5,000 HAR changes
    - 8,580 incidents

R1B2 DB Size Estimate (Cont'd)

Static Tables		
Table Name	# of rows	Rationale
1. Center	500	R1B1 estimate
2. Ch2_dictionary	100	R1B1 estimate
3. Code_list	30	Estimate based on current number of code tables defined
4. Code_list_item	450	An average of 15 codes per code list
5. Device	500	R1B1 estimate
6. Device_configuration	100	Worst case of 1 configuration for each Device
7. Dictionary_word	1,000	R1B1 estimate
8. Dms_font	100	R1B1 estimate
9. Functional_right	200	R1B1 estimate
10. Har_msg	1,000	Rough estimate
11. Har_msg_clip	4,000	An average of 4 message clips per HAR message
12. Har_slot_config	400	8 prestored messages per HAR, based on 50 HARs
13. Message_library	500	R1B1 estimate
14. Msg_clip_list	3,000	An average of 3 clips per HAR message
15. Organization	200	R1B1 estimate
16. Plan	2,000	R1B1 estimate
17. Plan_item	10,000	R1B1 estimate
18. Profile property	12,300	8 per user plus 300 for system
19. Role	100	R1B1 estimate
20. Role_assignment	2,000	R1B1 estimate
21. Role_function	400	R1B1 estimate
22. Standard_lane	400	An average of 4 lanes per lane configuration
23. Standard_lane_config	100	Ball park figure
24. Stored_message	10,000	R1B1 estimate
25. TTS file cache	4,000	Based on the number of clips
26. User_profile	1,500	R1B1 estimate

R1B2 DB Size Estimate (Cont'd)

Dynamic Tables		
Table Name	# of rows	Rationale
1. Associated_event	200	One fifth of the number of events
2. Center_login	1,500	R1B1 estimate
3. Communications_log	2,000	Double the number of events
4. Disabled_vehicle_indicator	720	Estimate 240 disabled vehicle occurrences per two week period times an average of three indicators per disabled vehicle
5. Event	1,000	26,000 events per year which is the sum of the estimated DMS changes (13,000), HAR changes (5,000), and incidents (8,580) per year
6. Event_history	60,000	An average of 60 operator actions per event
7. Event_resource	4,000	An average of 4 resources allocated per event
8. Event_type_history	2,000	An average of 1 event type change per event
9. Incident_vehicles_involved	660	An average of two vehicles involved in each incident (based on 8,580 incidents per year)
10. Lane_state	4,000	An average of 4 lane state changes per event
11. Operations_log	20,000	R1B1 estimate
12. Response_plan_queue	5,000	An average of 5 queued rows per event
13. Rpq_device	25,000	An average of 5 devices per queued rows per event
14. Weather	2,000	An average of 2 per event

Log Migration Plan

- **All logs will be maintained in the operational database for a system specified number of days. Nominally 14 days. This includes:**
  - Operations Log
  - Communications Log
  - Event Logs
    - If the event continues past 14 days, the event is migrated when the event is closed.

Log Migration Plan

- **Event Logs may consist of the following categories:**
  - Incident
  - Planned Roadway Closure (EORS tracking number)
  - Congestion (recurring and non-recurring)
  - Action
  - Disable Vehicle
  - Special Event
  - Weather Alert
  - Safety Message

Log Migration Plan

- All logs will be migrated to another database currently called C2ARCH.
- C2ARCH is interim storage to maintain the log data until the CHARTII archive is available.
- Estimated storage is approximately 4GB per year max.
- When the CHARTII archive is built, appropriate data from the logs will be used to populate the archive.

Data Load Plan R1B1 to R1B2

- Use automated tools to extract and format data and populate R1B2 tables.
- Method of data migration will be documented and approved prior to turnover.

Data Load Plan R1B1 to R1B2

- **Methods under consideration for migrating R1B1 to R1B2**
  - Option 1 - Requires operational down time but guarantees no loss of data.
  - Option 2 - Requires no operational down time but possibility of data loss. Changes to data during migration will be captured and re-entered.